FZ provider
OMRON

Version 1.0.1

User's guide

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【Remarks】

【 Revision history 】

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1.0.0.0	2011-12-06	First edition.
1.0.0.1	2012-01-26	SCRSWITCH was added SCNGROUP was added
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1. Introduction

This document is a user's guide of the FZ provider that is the CAO provider for the FZ series that is the vision system mamufactured by OMRON.

The FZ provider sends and receives commands from/to the FZ series which Ethernet is connected. The communication supports the Ethernet(TPC/IP,UDP) connection. (The connection of RS232-C is currently unsupported.)

This document describes functions of this FZ provider and implemented methods.

The model being supported by the FZ provider becomes the following.

- FZ3 series
- FZ4 series
- FZM series

2. Outline of provider

2.1. Outline

The FZ provider offers the CaoController::Execute-method as a command execution method.

In CaoController::Execute, the command is sent and received by using the serial interface.

Table2-1FZ provider

File name	CaoProvFZ.dll
ProgID	CaoProv.OMRON.FZ
Registry registration	regsvr32 CaoProvFZ.dll
Remove registry registration	regsvr32 /u CaoProvFZ.dll

2.2. Setup

The FZ series need be set up the communication specification and the output setting beforehand as follows when connecting it from the FZ provider to the FZ series.

When an appropriate setting is not done, data input-output is not operated properly.

The following example shows how to set the FZ3 series manufactured by OMRON.

2.2.1. Communication module setup

Select “No control sequence(無手順) ” for the communication module of FZ3 series. Setup is as follows.

- Operation route

  [Mode]-[System]-[Controller]-[Start up setting]-[Communication module]

- Configuration parameter

  Cereal (Ethernet) :No control sequence

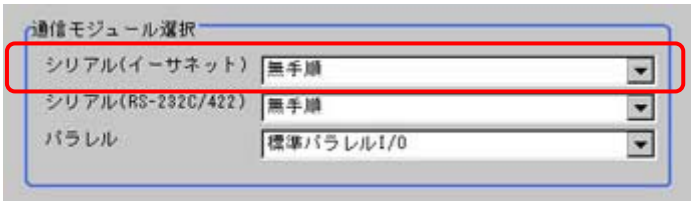

Figure 2-1Setting of communication module

2.2.2. Communication routing

Set the communication specification when connecting it to the FZ3 series with Ethernet. Setup is as follows.

- Operation route

  [Communication]-[Cereal]-[Ethernet]

- Configuration parameter

  Output IP address : Input the destination IP address

  I/O port number :Set the port number used for the data I/O.

Figure 2-2Communication routing

2.2.3. Output setup

To receive the image processing result, it is necessary to set the cereal data output. Setup is as follows.

- Operating procedure

  [Cereal data] - [Output the result] - [Cereal data output] - [Output format]

- Configuration parameter

  Output format : ASCII

  Expression of negative number : -

  Zero suppression functions : Yes

  Field separator character : Comma

  Record separator character : Delimiter

Figure 2-3Output setting

2.2.4. RS-232C/422 setup

- Operating procedure
  [System] - [Communication] - [RS-2323C/422]
- Configuration parameter
  Delimiter : CR

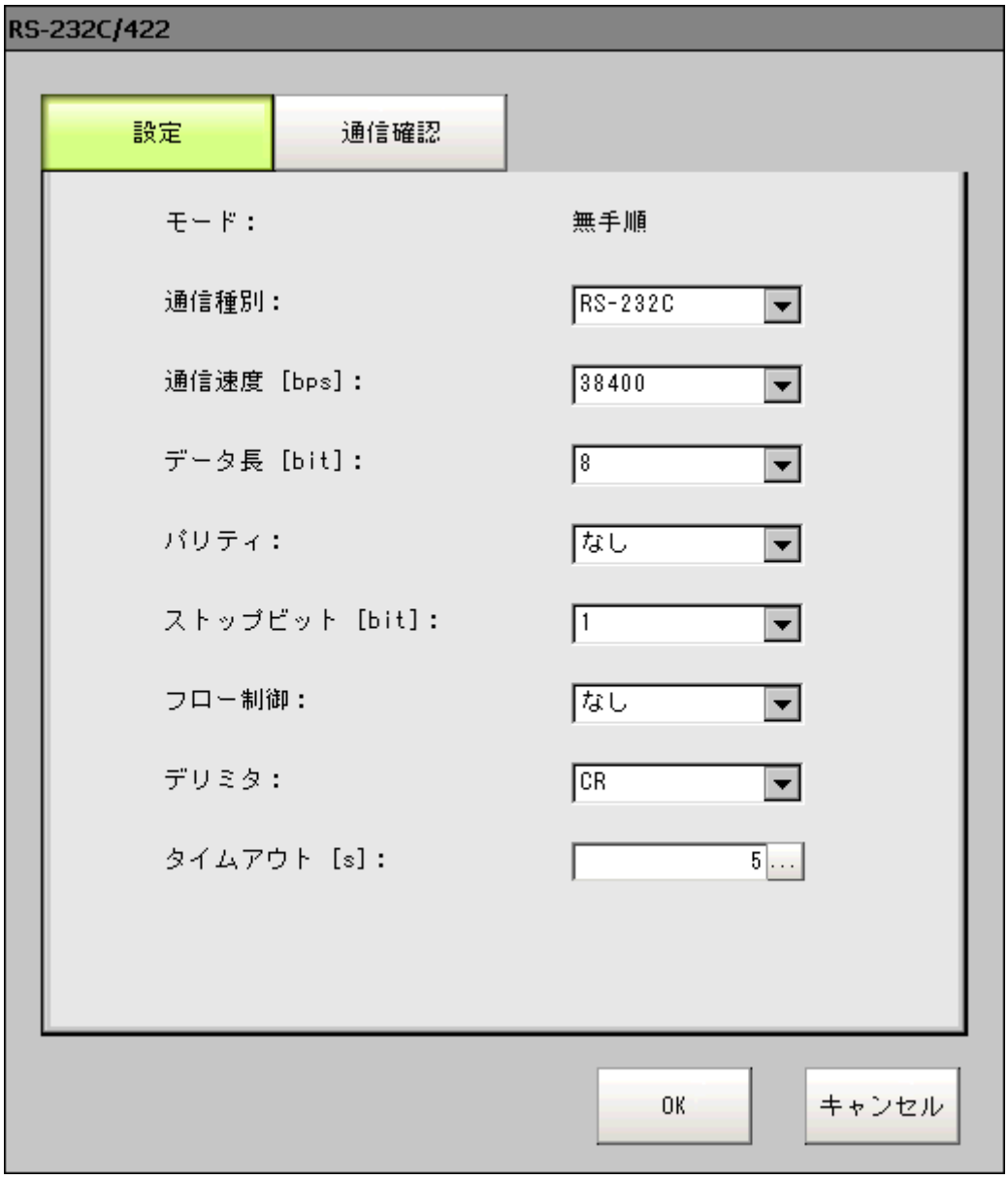

Figure 2-4 RS-232C/422 setting

2.3. Method and Property

2.3.1. CaoWorkspace::AddController method

At AddController, FZ3 provider refers communication connection parameters and connects communication Option specifies communication method, destination IP address and time-out time.

Syntax AddController (< bstrCtrlName:VT_BSTR > and < bstrProvName:VT_BSTR >
<bstrPcName:VT_BSTR > [,<bstrOption:VT_BSTR>])

bstrCtrlName : [in] Controller name arbitrary.

bstrProvName : [in] Provider name (Fixed to " CaoProv.OMRON.FZ")
bstrPcName : [in] Provider execution machine name
bstrOption : [in] Option character string

Following is a list of option string items.

Table2-2Option cstring of CaoWorkspace::AddController

Option	Explanation
Conn =< connected parameter >	Mandatory. Set the Communication form and connected parameters Refer X.X.X.X for details.
MyIP=<Local IP address>[:local port number]	Mandatory. Specify the destination IP address and the port number which output from the FZ series. If the local IP is not specified, the system assigns 9876 as port number.
timeout =< Time-out time >	Specify the communication time-out time (default: 500) msec.

2.3.1.1. Conn option

Following is communication parameter string for Comm option. Square blanket ("[]") means the parameter can be omitted. Underline part shows the default value when the option is not specified.

- EtherNet device
  "eth:<IP Address> [:<Port No>]"
  <IP Address> :Internet Protocol address of connected FZ series.
  Example:"127.0.0.1", "10.5.5.100"
  <Port No> :Connection port number. 9876, 9877. . . any port number can be assigned

2.3.2. CaoController::Execute method

The command is sent and received via EtherNet by the no-control-sequence method. The command name is specified in the first argument and the parameter of the command is specified for the second argument. Please refer to Chapter 3 Command reference for details of each command.

Syntax Execute (<bstrCommandName:VT_BSTR>,[<vntParam : VT_VARIANT>])
bstrCommandName: [in] Command name
vntParam : [in] Parameter

The processing result from FZ at the time of Execute method execution is returned as HRESULT.

When normally processed (OK): S_OK (0)

When not normally processed (ER): 0x80100010

3. Command reference

This chapter explains each command of the CaoController::Execute method. The command list that corresponds in the FZ series provider is shown as follows.

Please refer to the user's manual of the OMRON Co. for detailed operation of each command.

Table3-1CaoController::Execute List of Command

FZ series Command	Command	Function	
Scene control command			
SCENE	SCENE	Get current scene number.	P. 13
		Switch currently used scene number	P. 13
SCENEGROUP	SCENEGROUP	Get currently used scene group number	P. 13
		Switch scene group number.	P. 14
Measurement control/ Measurement value acquisition command			
MEASURE	MEASURE	Execute measurement one time.	P. 14
		Start continuous measurement (unimplemented).	
		Stop continuous measurement (unimplemented).	
SCRSWITCH	SCRSWITCH	Switch the adjustment screen/driving screen.	P. 15
UNITDATA	UNITDATA	Get the parameter and the measurement value of the specified processing unit (unimplemented).	
		Set the parameter of the specified processing unit (unimplemented)	
Acquisition/Change setting command			
DATE	DATE	Get date/present time (unimplemented).	
		Get date/time (unimplemented).	
DISPCOND	DISPCOND	Get present image display status (unimplemented).	
		Change the image display status (unimplemented).	
SYSDATA	SYSDATA	Get the image logging setting (unimplemented).	
		Change the image logging setting (unimplemented).	
VERGET		Get System Version information (unimplemented).	
Backup/Restore command			
BKDLOAD	BKDLOAD	Read the System + Scene group 0 data (unimplemented)	
BKDSAVE	BKDSAVE	Save the System + Scene group 0 data into files (unimplemented).	
DATASAVE	DATASAVE	Save the System + Scene group 0 data into an USB flash drive (unimplemented).	
IMGSAVE	IMGSAVE	Save the image data (unimplemented).	
SCNLOAD	SCNLOAD	Read the scene data (unimplemented).	
SCNSAVE	SCNSAVE	Save the scene data (unimplemented).	

SGRLOAD	SGRLOAD	Read the scene group data (unimplemented).	
SGRSAVE	SGRSAVE	Save the scene group data (unimplemented).	
SYSLOAD	SYSLOAD	Read the system data (unimplemented).	
SYSSAVE	SYSSAVE	Save the system data (unimplemented).	
Utility command			
CLRMEAS	CLRMEAS	Clear all the measurement values of a present scene	P. 15
RESET	RESET	Restart the controller (unimplemented).	

3.1. Scene control command

3.1.1. CaoController::Execute("SCENE") command

3.1.1.1. Get the scene number

Get the currently used scene number.

Syntax SCENE ()

Argument : None

Return value : [out] Currently used scene number (0-31) (VT_I4)

Following example shows when scene 0 is used

Example

```
Dim lSceneNo as long
lSceneNo = caoCtrl.Execute("SCENE")

lSceneNo : 0
```

3.1.1.2. Switch the scene number

Switch the currently used scene number.

Syntax SCENE(<lSceneNo>)

<lSceneNo> : [in] Scene number (0-31) (VT_I4) after switch

Return value : None

Following example shows how to switch to scene 2.

Example

```
caoCtrl.Execute "SCENE", 2
```

3.1.2. CaoController::Execute("SCNGROUP") command

3.1.2.1. Get the currently used scene group number

Get the currently used scene group number.

Syntax SCNGROUP ()

Argument : None

< lScnGrpNo > : [out] Currently used scene group number (0-31) (VT_I4)

Following example shows when scene group 0 is used.

Example

```
Dim lScnGrpNo as long
lScnGrpNo = caoCtrl.Execute("SCNGROUP")

lScnGrpNo : 0
```

3.1.2.2. Switch the scene group number

Switch the currently used scene group number.

Syntax SCNGROUP (<lScnGrpNo>)

<lScnGrpNo> : Scene group number (0-31) (VT_I4) of in

Return value : None

The example when switching to scene group 2 is shown below.

Example

```
Dim lScnGrpNo as long
lScnGrpNo = 2
caoCtrl.Execute "SCNGROUP", lScnGrpNo
```

3.2. Measurement control/Measurement value acquisition command

3.2.1. CaoController::Execute ("MEASURE") command

The measurement is executed one time

When the cereal data output is set, the measurement result is output to the return value.

When the cereal data output is not set, the measurement result is not output.

Syntax MEASURE ()

Argument : None

dblResult : Measurement result (cereal data output) (VT_R8 | VT_ARRAY)

Following example shows when “MEASURE" command is executed.

Example

```
Dim vntResult as Variant
vntResult = caoCtrl.Execute("MEASURE")

VntResult: Value set by cereal data output
```

3.2.2. CaoController::Execute ("SCRSWITCH") command

Switch the adjustment screen and the driving screen.

Syntax SCRSWITCH ()

Argument : None

Return value : None

Following example shows when “SCRSWITCH" command is executed.

Example

```
caoCtrl.Execute "SCRSWITCH"
```

3.3. Utility command

3.3.1. CaoController::Execute ("CLRMEAS") command

Clear all the measurement values of a current scene.

Syntax CLRMEAS ()

Argument : None

Return value : None

Following table shows the display status after command execution.

Judgment result	Has not measured yet (0)
Numerical value	0
Character string	Null character

Following example shows when the “CLRMEAS" command is executed .

Example

```
caoCtrl.Execute "CLRMEAS"
```